Andrew T. Morgan
Curriculum Vitae

Address: Section on Functional Imaging Methods
National Institute of Mental Health
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Email: andrew.morgan@nih.gov

Education: University of Glasgow
Neuroscience & Psychology
Doctor of Philosophy, 2018

University of Glasgow
Brain Imaging
Master of Science, with Distinction 2013

University of Southern California
Neuroscience
Bachelor of Arts, 2011

Present Position:

Post-doctoral Fellow, Section on Functional Imaging Methods, NIMH (August 2020)
Investigating spatio-temporal response properties of human cortical layers with line scanning.

Certifications:

Siemens IDEA Sequence Programming Certification – January 2017, Edinburgh, UK
Imaging Centre of Excellence 7T MRI Operator – Univ. of Glasgow & NHS, Glasgow, UK
Scannexus 7T MRI Operator and Magnet Safety Certification – Maastricht, Netherlands

Honors and Awards:

Best Oral Presentation Award – 2nd HBP Student Conference (2018), Ljubljana, Slovenia
OHBM Merit Abstract Award – 2016 OHBM Annual Meeting in Geneva, Switzerland
Mac Robertson Travel Scholarship 2014-2015 – Awarded to study 7T MRI at the Maastricht Brain Imaging Center, Maastricht, Netherlands
OHBM Trainee Abstract Travel Award – 2014 OHBM Annual Meeting in Hamburg, Germany
Guarantors of Brain Travel Grant – 2014 OHBM Annual Meeting in Hamburg, Germany
Postgraduate Research Scholarship 2013-2018 – Univ. of Glasgow, Science & Engineering
Best-Overall-Performance Award – MSc Research Methods and Brain Imaging 2012-13, Univ. of Glasgow, Institute of Neuroscience & Psychology
Alpha Epsilon Delta – Univ. of Southern California Pre-medical Honorary

Teaching Experience and Outreach:

2019, Lecturer, Univ. of Glasgow, PSYCH4090: Basics of fMRI in Cognitive Psychology

2019, Course organizer, Human Brain Project Cognitive Systems Workshop, Glasgow, UK

2017-2019, Student Ambassador: Human Brain Project, Education Programme, SP3 (Systems Neuroscience).

2017, Young Researchers Event, Organizing Committee Member: Human Brain Project. Geneva, Switzerland (Sept. 12-13).

2016, Grad. Teaching Assistant, Univ. of Glasgow, PSYCH5060: fMRI in Biopsychology

2014, Grad. Teaching Assistant, Univ. of Glasgow, PSYCH5016: Intro. to Matlab Programming

2013, Grad. Teaching Assistant, Univ. of Glasgow, PSYCH5016: Intro. to Matlab Programming

Previous Positions:

Apr 2017 – Aug 2020: Post-doctoral Fellow, Centre for Cog. Neuroimaging, Univ. of Glasgow
Projects: Human Brain Project (SP3: Systems Neuroscience); UK7T Network

Sept 2013 – Sept 2017: PhD Student, Centre for Cognitive Neuroimaging, Univ. of Glasgow
Supervision: Prof. Lars Muckli (Primary), Prof. Philippe Schyns (Secondary)

Sept 2012 – Sept 2013: MSc Student, Centre for Cognitive Neuroimaging, Univ. of Glasgow
Supervision: Prof. Lars Muckli

June 2010 – Aug 2012: Research Associate II, Laboratory of Molecular Neuroimaging, UCLA

Nov 2010 – Oct 2011: Undergraduate Academic Tutor, Westside Student Tutors

July 2009 – Feb 2010: Clinical/Clerical Volunteer, LA County Hospital, Univ. of So. California

Feb 2006 – May 2009: Lab Assistant, Neurocognitive Dev. Laboratory, Univ. of So. California

Invited Talks:

1. 2021/6, International Conf. of Cognitive Neuroscience, Helsinki, Finland,
   Cortical feedback to superficial layers of V1 contains predictive scene information.
2. 2020/9, International Soc. for Mag. Resonance in Medicine Annual Meetings, Paris, France,
   High-resolution line-scanning reveals distinct visual response properties across human cortical layers.
3. 2019/12, National Institute of Mental Health, Bethesda, MD, USA,
   Investigating contextual processing in cortical layers with occlusion and high-resolution fMRI.
4. 2019/11, Minnesota Workshop on High and Ultra-high Field Imaging, Minneapolis, MN, USA,
   Cortical feedback to superficial layers of V1 contains predictive scene information.
5. 2018/10, EU Flagship Human Brain Project Annual Summit Meeting, Maastricht, Netherlands,
   Predictive processing: Theory and applications within and beyond the Human Brain Project
6. 2018/6, International Society for Mag. Resonance in Medicine Annual Meetings, Paris, France,
   Cortical feedback to superficial layers of V1 contains predictive scene information.
7. 2018/2, 2nd Human Brain Project Student Conference, Ljubljana, Slovenia,
   Cortical feedback to superficial layers of V1 contains predictive scene information.
   Awarded Best Oral Presentation.

8. 2016/6, Organization for Human Brain Mapping Annual Meeting, Geneva, Switzerland, *High-level scene information is transmitted to V1 & V2 by cortical feedback.*
9. 2016/3, Centre for Cognitive Neuroimaging Debate Preparation Series, University of Glasgow, *Representational Similarity Analysis and the work of Niko Kriegeskorte.*
10. 2015/8, European Conference on Visual Perception, University of Liverpool, *Individual scene, category and depth information is fed back to retinotopically non-stimulated subsections of early visual cortex.*
11. 2015/3, Centre for Cognitive Neuroimaging Debate Preparation Series, University of Glasgow, *The work of Andreas Kleinschmidt.*
12. 2014/10, Institute of Neuroscience & Psychology Research Day, University of Glasgow, *Filling in scene information through cortical feedback.*

Bibliography:

Preprints:

1. J Bergmann, **AT Morgan**, L Muckli (2019): Two distinct feedback codes in V1 for 'real' and 'imaginary' internal experiences. bioRxiv. **doi**: 10.1101/664870.
2. M Svanera, **AT Morgan**, LS Petro, L Muckli (2020): An unsupervised deep neural network for image completion resembles early visual cortex fMRI activity patterns in occluded scenes. bioRxiv. **doi**: 10.1101/2020.03.24.005132.
3. **AT Morgan**, N Nothnagel, LS Petro, J Goense, L Muckli (2020): High-resolution line-scanning reveals distinct visual response properties across human cortical layers. bioRxiv: **doi**: 10.1101/2020.06.30.179762
4. L Huber, BA Poser, PA Bandettini, K Arora, K Wagstyl, S Cho, J Goense, N Nothnagel, **AT Morgan**, J van den Hurk, RC Reynolds, DR Glen, R Goebel, OF Gulban (2020): LAYNII: A software suite for layer-fMRI. bioRxiv: **doi**: 10.1101/2020.06.12.148080

Published:

5. C Rua, WT Clarke, ID Driver, O Mougin, **AT Morgan**, S Clare, S Francis, K Muir, D Porter, R Wise, A Carpenter, G Williams, JB Rowe, R Bowtell, CT Rodgers (2020): Multi-centre, multi-vendor reproducibility of 7T QSM and R2* in the human brain:results from the UK7T study. Neuroimage. **doi**: 10.1016/j.neuroimage.2020.117358.
6. WT Clarke, O Mougin, ID Driver, C Rua, **AT Morgan**, M Asghar, S Clare, S Francis, RG Wise, CT Rodgers, A Carpenter, K Muir, R Bowtell (2019): Multi-Site Harmonization of 7 Tesla MRI Neuroimaging Protocols. Neuroimage. **doi:** 10.1016/j.neuroimage.2019.116335
7. **AT Morgan**, LS Petro, L Muckli (2019): Scene representations conveyed by cortical feedback to early visual cortex can be described by line drawings. J Neurosci. 39(47): 9410-9423. **doi**: 10.1523/JNEUROSCI.0852-19.2019
8. K Ishibashi, CL Robertson, **AT Morgan**, MA Mandelkern, ED London (2013): The Simplified Reference Tissue Model with 18F-fallypride PET: Choice of Reference Region. Mol Imaging. 12(8). **doi**: 10.2310/7290.2013.00065.

9. M Kohno, DG Ghahremani, AM Morales, CL Robertson, K Ishibashi, **AT Morgan**, MA Mandelkern, ED London (2013): Risk-Taking Behavior: Dopamine D2/D3 Receptors, Feedback, and Frontolimbic Activity. Cereb Cortex. 25(1):236-245. **doi**: 10.1093/cercor/bht218.
10. DG Ghahremani, B Lee, CL Robertson, G Tabibnia, **AT Morgan**, N De Shetler, AK Brown, J Monterosso, AR Aron, MA Mandelkern, RA Poldrack, ED London (2012): Striatal dopamine D2/D3 receptors mediate response inhibition and related activity in frontostriatal neural circuitry in humans. J Neurosci. 32(21):7316-24. **doi**: 10.1523/JNEUROSCI.4284-11.2012.

Abstracts:

1. ND Nothnagel, A Symon, **AT Morgan**, L Huber, J Riddell, J Goense (2021): VASO-fMRI with Nordic-PCA for laminar sensory testing at 7 Tesla. ISMRM. May 15-20, Vancouver, BC, Canada.
2. R Huber, BA Poser, PA Bandettini, K Arora, K Wagstyl, S Cho, J Goense, **AT Morgan**, N Nothnagel, AK Mueller, J van den Hurk, RC Reynolds, DR Glen, R Goebel, OF Gulban (2021): LayNii: A software suite for layer-fMRI. ISMRM. May 15-20, Vancouver, BC, Canada.
3. **AT Morgan**, F de Martino, LS Petro, R Goebel, L Muckli (2021): Cortical feedback to superficial layers of V1 contains predictive scene information. ICON. June 16-20, Helsinki, Finland.
4. **AT Morgan**, N Nothnagel, J Goense, L Muckli (2020): High-resolution line-scanning reveals distinct visual response properties across human cortical layers. ISMRM. August 8-13, Paris, France.
5. **AT Morgan**, F de Martino, LS Petro, R Goebel, L Muckli (2019): Cortical feedback to superficial layers of V1 contains predictive scene information. CMRR Workshop on UHF Imaging. Nov. 12-16, 2019, Minneapolis, MN, USA.
6. **AT Morgan**, LS Petro, L Muckli (2019): Aligning subject population responses by reconstructing activity patterns in sensory space. Org. Human Brain Mapp. June 9-13, Rome, Italy.
7. ID Driver, O Mougin, WT Clarke, C Rua, **AT Morgan**, A Carpenter, K Muir, D Porter, CT Rodgers, S Clare, S Francis, R Bowtell, R Wise (2019): Inter-site repeatability of motor-visual task fMRI responses at 7 Tesla. ISMRM. May 11-16, Montreal, Canada.
8. WT Clarke, O Mougin, ID Driver, C Rua, **AT Morgan**, S Francis, R Bowtell, RG Wise, A Carpenter, CT Rodgers, K Muir, S Clare (2019): Inter-site, inter-subject and inter-session variability of B1+ and B0 in the human brain at 7 tesla. ISMRM. May 11-16, Montreal, Canada.
9. O Mougin, WT Clarke, ID Driver, C Rua, **AT Morgan**, S Francis, K Muir, A Carpenter, CT Rodgers, RG Wise, D Porter, S Clare, R Bowtell (2019): Robustness of PSIR segmentation and R1 mapping at 7T: a travelling head study. ISMRM. May 11-16, Montreal, Canada.
10. WT Clarke, O Mougin, ID Driver, C Rua, **AT Morgan**, S Clare, S Francis, RG Wise, A Carpenter, CT Rodgers, K Muir, R Bowtell (2019): The UK7T Network's Harmonized Neuroimaging Protocols. ISMRM. May 11-16, Montreal, Canada.
11. C Rua, WT Clarke, ID Driver, O Mougin, **AT Morgan**, S Clare, S Francis, K Muir, D Porter, RG Wise, A Carpenter, G Williams, CT Rodgers, R Bowtell (2019): QSM and R2* measurements from cortical and subcortical regions of the human brain at 7T: a Multi-Centre Reproducibility Study. ISMRM. May 11-16, Montreal, Canada.
12. **AT Morgan**, LS Petro, L Muckli (2018): Cortical feedback to superficial layers of V1 contains predictive scene information. Cog. Comp. Neuro. Sept. 5-8, Philadelphia, PA, USA.
13. M Svanera, **AT Morgan**, LS Petro, L Muckli (2018): Unsupervised deep neural network for fMRI feedback modelling. Cog. Comp. Neuro. Sept. 5-8, Philadelphia, PA, USA.

14. **AT Morgan**, F de Martino, LS Petro, R Goebel, L Muckli (2018): Cortical feedback to superficial layers of V1 contains predictive scene information. Org. Human Brain Mapp. June 16-21, Singapore.
15. **AT Morgan**, F de Martino, LS Petro, R Goebel, L Muckli (2018): Cortical feedback to superficial layers of V1 contains predictive scene information. ISMRM-ESMRMB. June 16-21, Paris, France.
16. WT Clarke, O Mougin, ID Driver, C Rua, **AT Morgan**, M Asghar, S Clare, S Francis, RG Wise, A Carpenter, K Muir, R Bowtell (2018): The UK7T Network – optimized design of a multi-site, multi-vendor travelling heads study. ISMRM-ESMRMB. June 16-21, Paris, France.
17. **AT Morgan**, LS Petro, L Muckli (2018): Cortical feedback to superficial layers of V1 contains predictive scene information. Human Brain Project Student Conf. Feb. 14-16, Ljubljana, Slovenia.
18. **AT Morgan**, LS Petro, L Muckli (2017): Viewing cortical processing in sensory space. Soc. Neurosci. Nov. 11-15, Washington, DC, USA.
19. L Muckli, LS Petro, **AT Morgan** (2017): Studying feedforward and feedback signal integration. Cog. Comp. Neuro. Sept. 6-8, New York, NY, USA.
20. **AT Morgan**, F de Martino, MA Bennett, LS Petro, R Goebel, L Muckli (2017): Modelling contextual sensitivity in early visual cortex using high-resolution 7T fMRI. Org. Human Brain Mapp. June 25-29, Vancouver, Canada.
21. **AT Morgan**, LS Petro, L Muckli (2016): V1 & V2 receive high-level scene information via cortical feedback. Soc. Neurosci. Nov. 12-16, San Diego, CA, USA.
22. **AT Morgan**, LS Petro, L Muckli (2016): High-level scene information is transmitted to V1 & V2 by cortical feedback. 22nd Ann. Meeting, Org. Human Brain Mapp. June 26-30, Geneva, Switzerland.
23. MA Bennett, LS Petro, **AT Morgan**, F De Martino, L Muckli (2016): High-resolution 7T fMRI reveals auditory and imagery information in non-stimulated visual cortex. 22nd Ann. Meeting, Org. Human Brain Mapp. June 26-30, Geneva, Switzerland.
24. **AT Morgan**, LS Petro, L Muckli (2016): Cortical feedback to V1 and V2 contains unique information about high-level scenes structure. Vision Sciences Society Meeting. May 13-18, St. Petersburg, FL.
25. **AT Morgan**, LS Petro, L Muckli (2016): Cortical feedback to V1 and V2 contains unique information about high-level scenes structure. Neuroscience Workshop Saclay. Jan. 28-29, Gif-Sur-Yvette, France.
26. **AT Morgan**, LS Petro, L Vizioli, L Muckli (2015): Individual scene, category and depth information is fed back to retinotopically non-stimulated subsections of early visual cortex. European Conference on Visual Perception. Aug. 23-27, Liverpool, UK.
27. **AT Morgan**, LS Petro, L Vizioli, L Muckli (2015): Retinotopically occluded early visual cortex contains information about individual scenes, category and depth. Vision Sciences Society Meeting. May 15-20, St. Petersburg, FL.
28. **AT Morgan**, LS Petro, L Vizioli, L Muckli (2015): Retinotopically occluded early visual cortex contains information about individual scenes, category and depth. Glasgow Neuroscience Day Meeting. Jan. 16, Glasgow Caledonian University, Glasgow, UK.
29. **AT Morgan**, LS Petro, L Muckli (2014): Real-world scene categories and depth are exhibited by feedback to occluded areas of V1. 20th Ann. Meeting, Org. Human Brain Mapp. June 8-12, Hamburg, Germany.
30. **AT Morgan**, LS Petro, L Muckli (2014): Real-world scene representations in occluded V1 are affected by scene category. Glasgow Neuroscience Day Meeting. Jan. 17, University of Strathclyde, Glasgow, UK.

31. **AT Morgan**, LS Petro, L Muckli (2013): Investigating scene gist information content of feedback signals using fMRI. 19th Ann. Meeting, Org. Human Brain Mapp. June 16-20, Seattle, WA.
32. **AT Morgan**, LS Petro, F Smith, L Muckli (2013): Investigating scene gist information content of intracortical signals using fMRI. Glasgow Neuroscience Day Meeting. Jan. 23, Glasgow, UK.
33. M Kohno, DG Ghahremani, AM Morales, C Robertson, K Ishibashi, **AT Morgan**, RA Poldrack, MA Mandelkern, ED London (2012): Neurobiological determinants of risk-taking: the influence of recent experience, frontolimbic activation, and dopamine D2/D3 receptors. Soc. Neurosci. Oct. 13-17, New Orleans, LA.
34. M Kohno, DG Ghahremani, AM Morales, C Robertson, K Ishibashi, **AT Morgan**, RA Poldrack, MA Mandelkern, ED London (2012): Neurobiological determinants of risk-taking: the influence of recent experience, frontolimbic activation, and dopamine D2/D3 receptors. Frontiers in Addiction Research - NIDA Symposium (New Orleans, LA, October).
35. C Robertson, K Ishibashi, AK Brown, **AT Morgan**, DG Ghahremani, E Congdon, J Farahi, M Mandelkern, T Cannon, F Sabb, ED London (2012): Relationships of D1- and D2-like Receptor Availability and Response Inhibition in the Stop-Signal Task: a Preliminary PET Study. Functional Neuroreceptor Mapping. Aug. 9-11, Baltimore, MD.
36. K Ishibashi, C Robertson, AK Brown, **AT Morgan**, J Farahi, MA Mandelkern, T Cannon, ED London (2012): Differential roles of dopamine D1- and D2-like receptors in impulsivity: a preliminary PET study. Functional Neuroreceptor Mapping. Aug. 9-11, Baltimore, MD.
37. **AT Morgan**, M Kohno, AC Dean, ED London (2011): Neural correlates of contextual risk-taking in healthy individuals. Soc. Neurosci. Nov. 12-16, Wash., DC.
38. M Kohno, **AT Morgan**, ED London (2011): Faulty decision-making in methamphetamine dependence associated with abnormal temporal discounting and disruptions in white matter integrity in the reward circuitry. Soc. Neurosci. Nov. 12-16, Wash., DC.
39. DG Ghahremani, C Robertson, E Ahlenius, **AT Morgan**, G Tabibnia, B Lee, AK Brown, MA Mandelkern, J Monterosso, RA Poldrack, ED London (2011): Striatal dopamine receptor availability predicts response inhibition behavior and related fMRI BOLD activation in humans. Soc. Neurosci. Nov. 12-16, Wash., DC.
40. M Kohno, **AT Morgan**, ED London (2011): Risk-taking and impulsivity in methamphetamine-dependent and healthy control participants. Coll. Problems Drug Depend. Jun. 18-23, Hollywood FL.